

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF :	Francois Delaney
FOR :	SYSTEM FOR LIFTING AND MOVING AN OBJECT
FILED :	February 13, 2002
SERIAL NO. :	10/073,286
GROUP ART UNIT :	3652
ATTORNEY DOCKET NO.:	06749-001-US-02

Montreal, Quebec, Canada
July 02, 2002

NOTICE TO FILE MISSING PARTS AND VOLUNTARY AMENDMENTS

Commissioner of Patents and Trademarks
Washington, D.C. 20231

Madam, Sir;

The present is further to our incomplete response dated May 13, 2002 to the Notice to File Missing Parts dated March 7, 2002 of the Nonprovisional Application (copy enclosed).

In order to complete the requirements stated in the Notice to File Missing Parts, please find herewith a new set of drawings on 12 pages containing drawings 1, 1a, 1b, 1c, 2, 3a, 3b, 3c, 4 to 8, 9a, 9b, 10 to 12. Please remove the drawing sheets 1 to 13 presently on file and replace them with the amended figures attached.

The applicant is hereby requesting that voluntary amendments be made to the text. The text has been amended to contain Technical Field, Background Art, a Brief Description of the

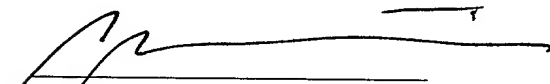
Drawings and a Summary of the Invention. The claims have been amended to better reflect the invention and to be judged more acceptable. Please replace pages 1 to 8 with the enclosed pages 1 to 12.

The applicant has by separate letter petitioned for an additional one (1) month extension of time, further to the filing of the Request for Extension of Time on May 13, 2002 for a one month extension of time.

If any further fees are due with respect to the above mentioned request for filing a missing parts, the US Patent Office is hereby authorized to also charge any such additional fees to our Deposit Account.

Respectfully submitted,

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Encl. Old pages 1 to 8 of abstract, disclosure and claims in red
New pages 1 to 12
Old figures 1 to 13 on 13 pages
New figures 1a, 1b, 1c, 2, 3a, 3b, 3c, 4 to 8, 9a, 9b, 10 to 12 on 12 pages
Copy of Missing parts dated March 07, 2002
Confirmation receipt post card



SYSTEM FOR LIFTING AND MOVING AN OBJECT

CLAIM OF PRIORITY

This application claims priority under 35 USC § 119(e) to U.S. Patent Application Serial

5 No.60/268,300, filed on February 13, 2001, the entire contents of which are hereby incorporated by reference.

Technical Field

10 The invention relates to apparatuses for lifting objects and displacing them from one location to the other.

Background Art

15 Many apparatuses for lifting and moving objects from one location to the other are known. However, they are cumbersome to use and costly to manufacture.

Disclosure of the Invention

20 The invention relates to a system and apparatus to lift and move an object from one location to another, composed of:

- a partially hollow vertical post, equipped at its base with a rotating system using the post as its vertical axis and ensuring its solidity with the help of a support which could be the soil
25 itself;

- a lateral arm firmly held to the vertical post by a pivot and equipped with a rail on which a carriage moves.

30 - one or many supporting arms firmly held to the vertical post used as a support to the lateral arm; and

- a holding system for an object held by a cable to the lateral arm's carriage.

Characterized by means of:

5 - a lateral arm firmly held to the vertical post in ways that allow movement in any pattern passing by the axis of the post;

10 - the vertical post equipped inside with a piston moving up and down, preferably under pressure created by a fluid, either liquid, gaseous or granular and preferably within such element as air, inert gases, synthetic or natural oil, mercury, water or sand;

- the aforementioned piston being held by a cable to the carriage moving in or on the lateral arm's rail and with the object's holding system; and

15 -the carriage, preferably equipped with a pulley system, which would allow its movement along the lateral arm and forcing the holding system to remain at the same distance from the carriage no matter its position on the arm.

Brief description of the drawings

20

Figure 1a is a perspective view of a lifting system in accordance with the invention;

Figure 1b is a top view of the system shown in figure 1a;

Figure 1c is a detailed view of the portion of figure 1a shown in "D";

Figure 2 is a detailed view of the portion of figure 3a shown in "B";

25 Figure 3a is a partial cross-section of the system along line A-A in figure 1b;

Figure 3b is a detailed cross-sectional view of the portion of figure 3a shown in "C";

Figure 3c is a partial cross-sectional side view of the base of the system shown in figure 1a;

Figure 4 is another perspective view of a lifting system in accordance with the invention;

Figure 5 is a detailed view of the portion of figure 4 shown in "E";

30 Figure 6 is another partial view of the portion of figure 4 shown in "E";

Figure 7 is a perspective view of a pulley sub-system for use with a system in accordance with

the invention;

Figure 8 is another perspective view of a pulley sub-system shown in figure 7 in which a portion of the pulley housing has been removed;

Figure 9 is a perspective view of an arm sub-system for use with a system in accordance with the invention;

Figure 9b is a perspective view of a base for use with a system in accordance with the invention;

Figure 10 is a perspective view of a cable sub-system for use with a system in accordance with the invention;

Figure 11 is a partial perspective view of a pulley sub-system for use with a system in accordance with the invention;

Figure 12 is another partial perspective view of a pulley sub-system for use with a system in accordance with the invention.

Description of a preferred embodiment

The apparatus consists in a 12 foot rail (38) fastened to the top of an 8 to 12 foot high, 8 inch diameter post (2)

The rail fastening is on a rotating joint (12-21-22-23-24) which allows continuous movement at 360 degrees.

A hole in the rotating joint allows the free movement of a cable (29) while the counterweight rises or lowers.

The rail (38) is supported by two 1-inch square braces (26) bolted (28) to a rolling block (27).

The rolling block (27) can move up and down on the outside of the post (2) with the help of two bearings (12).

A small carriage (10-11-12-13-14-15-16) installed inside the rail (38) allows the load to move freely along the rail.

At the end of the rail (38), is capped (19) to close the opening and hold the end of the cable (29) in place.

The bottom of the post (2) is welded to a triangular base (1) anchored (3-4) to the floor at each angle and filled with epoxy.

Two plastic rings (6) installed on top and bottom of the counterweight (5) prevent friction between metal parts. They are adjusted to let air or other gases leak at a preset volume, depending on the requirement.

A valve installed at the bottom of the post allows the control of air intake used to lift the counterweight.

Description of the Equipment

A piece of rubber (7) bolted (8) to the bottom of the counterweight eliminates impacts when lowering.

Two black, high-density steel bands (17) inside the rail (38) smoothen the movement of the carriage (10-11-12-13-14-15-16).

A 5/8-inch bearing (15) insures aligning action of the carriage in the rail (38) opening

The attachment block (30) prevent cables (29) from falling off the pulley (11) by keeping them under tension.

Equipment Mechanical Function

This apparatus has three distinct functions:

- a) Cancel the weight of an object to be lifted by a counterweight;
- b) Allow the operator to lift and lower an object with ease; and
- c) Move an object with a radius between two to 12 feet at 360 degrees.

Equipment Operating Procedures

This equipment is a lifting arm allowing easy handling of any solid object which can be held by a suction disc, a magnet, a hook or any other holding system.

The operator can handle the object within a diameter of 24 feet and controls the lifting and lowering by a remote control either wireless or connected.

The stand on which the remote control is installed is also used as a handle for the operator at the base of the holding system.

The holding system can be of any applicable shape.

Using a melamine-coated sheet as an example, the operator inserts air under the counterweight. As a result, the holding system (in this case the suction disk) lowers on top of the sheet. Once the sheet is appropriately held, he releases the air and the counterweight lowers thus lifting the sheet. The operator can then move the sheet where required and reinsert air to lower it. Finally, he releases the sheet and is ready for another maneuver.

This equipment is designed to handle small charges varying from 50 to 150 lbs.

The vertical post equipped inside with a piston moving up and down, preferably under pressure created by a fluid, either liquid, gaseous or granular and preferably within such element as air, inert gases, synthetic or natural oil, mercury, water or sand;

- 5 The aforementioned piston being firmly held by a cable to the carriage moving in or on the lateral arm and forcing the holding system to remain at the same distance from the carriage no matter its position on the arm.

Summary of the invention

The principal aspect to be claimed with this invention is “the operation of the counterweight”.

1. Its rising movement is made possible with low air pressure at four pounds per square inches (4PSI).
2. The sealing principle of the counterweight (piston) is to use air friction when it is moved through a small crack. This principle allows the creation of air pressure below the piston using very little air.
3. Another advantage with this principle is the fact that the small air leak created causes the piston to stay perfectly centered in the tube and eliminates wearing effect.
4. Along with insuring guiding and sealing, the use of this leaking system eliminates the need to pressurize the top of the piston or the use of air exhaust valve. This system requires only the reduction or closing of the air intake to allow the counterweight to lower simply by gravity thus rising the object.
5. It is impossible to abuse or break this equipment due to the fact that it can only lift 99% of the counterweight. Friction of mechanical elements is the reason for the 1% loss.
6. Using the supporting post as the compression chamber allows 360 degree continuous movement.
7. The closeness of the pulleys supporting the carriage system produce a breaking effect in the event the operator would try to rise too high the counterweight.
8. The counterweight can be of variable weight and it is a container equipped with a trap

on the bottom that allows rapid emptying:

- a) This container is open on top. A tank installed on top of the equipment can be filled with granular material or liquid using quiet moments. A trap on its bottom is used to fill the counterweight container as required.
- b) The method of bringing granular material or liquid can be achieved by using a ¼ HP small conveyor system with jars in a continuous movement.
- c) Management of the counterweight can be made possible by using liquids (water, oil, mercury) or granular material (sand, steel balls, polymeric balls).
- d) If mercury is chosen, everything must be done in closed circuit in order to avoid possible environment contamination. It must be noted that mercury has the advantage of being very compact although extremely expensive.

Claims:

- 5 1. System for lifting and moving an object from one point to another, said system comprising :
 - a. A partially hollow vertical post, said post being equipped at its base with a rotating system using said post as its vertical axis and means insuring its solidity with a support which could be the ground itself;
 - 10 b. A lateral arm pivotally held to said vertical post and including rail means on which a carriage moves;
 - c. One or more supporting arms firmly held to said vertical post to support said arm laterally; and
 - d. means to hold said object by a cable attached to said carriage.
2. A system as claimed in claim 1 wherein the lateral arm is held to said vertical post using means that allow movement in any plan passing through the axis of said post.
3. A system as described in claim 1 in which the vertical post comprises a piston which is vertically movable within said post, preferably using pressure created by a fluid, said fluid being a liquid a gas or a granular material and preferably chosen from in a group comprising air, inert gases, synthetic oils, natural oils, mercury, water, sand, polymer beads and steel beads.
- 25 4. A system as described in claim 3 wherein said piston is held solidly by a cable and said carriage being displaceable within or on said rail together with said object holding means.
5. A system as described in claim 1 in which the carriage comprises means allowing the carriage to be displaceable on said lateral arm and wherein said object holding means are arranged so as to remain at a constant distance from the carriage no matter where
- 30

the carriage is located on said rail.

6. A system as described in claim 5 wherein said means allowing the carriage to be displaced is a system of pulleys.
7. A system as described in claim 3 wherein said vertical displacement means comprise low pressure air being approximately four pounds per square inch.
8. A system as described in claim 3 wherein the said piston comprises sealing means which use of friction produced by air when it exits through a small aperture thus creating compressed air under the piston while consuming a small quantity of air.
9. A system as described in claim 8 wherein said air pressure is approximately four pounds per square inch.
10. A system as described in claim 3 wherein said piston is characterized by the fact that air exhaust during the movement of the piston causes the piston to center itself within the root and prevents the wear of the moving parts.
11. A system as described in claim 9 wherein said air exit insures the guidance of the piston and the sealing of the air eliminates the need to pressurize the top of the piston or to control the air exhaust by the use of a valve.
12. A system as described in claim 3 wherein said post is used as a compression chamber.
13. A system as described in claim 12 wherein said lateral arm may be movable 360° around said post.
14. A system as described in claim 1 in which said carriage comprises pulleys attached one to the others to produce a braking effect to prevent unwanted movement.

15. A system as described in claim 2 comprises a counterweight comprising first fluid reservoir and an opening in its underside allowing it to be rapidly emptied of fluid.

16. A system as described in claim 15 further comprising a second reservoir located above said first reservoir such that when the system is not in use, used fluid may be introduced in said second reservoir also equipped in its underside to allow the filling of said first reservoir when needed.

17. A system as described in claim 16 in which the means to move said fluid is a small with jars in a continuous movement.

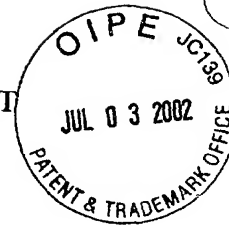
18. A system as described in claim 17 wherein said fluid is chosen from a group comprising air, inert gases, synthetic oils, natural oils, mercury, water, sand, polymer beads and steel beads.

19. A system as described in claim 18 wherein said fluid is mercury used in a closed circuit.

Abstract

- 5 A system for lifting and moving an object comprising a vertical post, having a lifting arm pivotably mounted thereon. Said vertical post comprising a piston connected to a carriage slidably mounted on said lifting arm, such that operation of said piston can lower and raise said object.

SYSTEM FOR LIFTING AND MOVING AN OBJECT



System to lift and move an object from one location to another, composed of:

- a partially hollow vertical post, equipped at its base with a rotating system using the post as its vertical axis and ensuring its solidity with the help of a support which could be the soil itself;
- a lateral arm firmly held to the vertical post by a pivot and equipped with a rail on which a carriage moves.
- one or many supporting arms firmly held to the vertical post used as a support to the lateral arm; and
- a holding system for an object held by a cable to the lateral arm's carriage.

Characterized by means of:

- a lateral arm firmly held to the vertical post in ways that allow movement in any pattern passing by the axis of the post;
- the vertical post equipped inside with a piston moving up and down, preferably under pressure created by a fluid, either liquid, gaseous or granular and preferably within such element as air, inert gases, synthetic or natural oil, mercury, water or sand;
- the aforementioned piston being held by a cable to the carriage moving in or on the lateral arm's rail and with the object's holding system; and
- the carriage, preferably equipped with a pulley system, which would allow its movement along the lateral arm and forcing the holding system to remain at the same distance from the carriage no matter its position on the arm.

The equipment consist of a 12 foot rail (9) fastened to the top of an 8 to 12 foot high, 8 inch diameter post (2)

The rail fastening is on a rotating joint (12-21-22-23-24) whichs allows continuous movement at 360 degrees..

A hole in the rotating joint allows the free movement of a cable (29) while the counterweight rises or lowers.

The rail (9) is supported by two 1-inch square braces (26) bolted (28) to a rolling block (27).

The rolling block (27) can move up and down on the outside of the post (2) with the help of two bearings (12).

A small carriage (10-11-12-13-14-15-16) installed inside the rail (9) allows the load to move freely along the rail.

At the end of the rail (9), is capped (19) to close the opening and hold the end of the cable (29) in place.

The bottom of the post (2) is welded to a triangular base (1) anchored (3-4) to the floor at each angle and filled with epoxy.

Two plastic rings (6) installed on top and bottom of the counterweight (5) prevent friction between metal parts. They are adjusted to let air or other gazes leak at a preset volume, depending on the requirement.

A valve installed at the bottom of the post allows the control of air intake used to lift the counterweight.

DESCRIPTION OF THE EQUIPMENT

A piece of rubber (7) bolted (8) to the bottom of the counterweight eliminates impacts when lowering.

5

Two black, high-density steel bands (17) inside the rail (9) smoothen the movement of the carriage (10-11-12-13-14-15-16).

A 5/8-inch bearing (15) insures aligning action of the carriage in the rail (9) opening

10

The attachment block (30) prevent cables (29) from falling off the pulley (11) by keeping them under tension.

EQUIPMENT MECHANICAL FUNCTION

This apparatus has three distinct functions:

- a) Cancel the weight of an object to be lifted by a counterweight;
- b) Allow the operator to lift and lower an object with ease; and
- c) Move an object with a radius between two to 12 feet at 360 degrees.

EQUIPMENT OPERATING PROCEDURES

This equipment is a lifting arm allowing easy handling of any solid object which can be held by a suction disc, a magnet, a hook or any other holding system.

5

The operator can handle the object within a diameter of 24 feet and controls the lifting and lowering by a remote control either wireless or connected.

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The stand on which the remote control is installed is also used as a handle for the operator at the base of the holding system.

The holding system can be of any applicable shape.

Using a melamine-coated sheet as an example, the operator inserts air under the counterweight. As a result, the holding system (in this case the suction disk) lowers on top of the sheet. Once the sheet is appropriately held, he releases the air and the counterweight lowers thus lifting the sheet. The operator can then move the sheet where required and reinsert air to lower it. Finally, he releases the sheet and is ready for another maneuver.

This equipment is designed to handle small charges varying from 50 to 150 lbs.

MAIN CLAIM

System to lift and move an object from one location to another, composed of:

5 A partially hollow vertical post, equipped at its base with a rotating system using the post as its vertical axis and ensuring its solidity with the help of a support which could be the soil itself;

A lateral arm firmly held to the vertical post by a pivot and equipped with a rail on which a carriage moves.

10

One or many supporting arms firmly held to the vertical post used as a support to the lateral arm; and

A holding system for an object held by a cable to the lateral arm's carriage.

Characterized by mean of:

A lateral arm firmly held to the vertical post in ways that allow movement in any pattern passing by the axis of the post;

The vertical post equipped inside with a piston moving up and down, preferably under pressure created by a fluid, either liquid, gaseous or granular and preferably within such element as air, inert gases, synthetic or natural oil, mercury, water or sand;

25 The aforementioned piston being firmly held by a cable to the carriage moving in or on the lateral arm and forcing the holding system to remain at the same distance from the carriage no matter its position on the arm.

Claims

The principal aspect to be claimed with this invention is "the operation of the counterweight".

1. Its rising movement is made possible with low air pressure at four pounds per square inches (4PSI).
2. The sealing principle of the counterweight (piston) is to use air friction when it is moved through a small crack. This principle allows the creation of air pressure below the piston using very little air.
3. Another advantage with this principle is the fact that the small air leak created causes the piston to stay perfectly centered in the tube and eliminates wearing effect.
4. Along with insuring guiding and sealing, the use of this leaking system eliminates the need to pressurize the top of the piston or the use of air exhaust valve. This system requires only the reduction or closing of the air intake to allow the counterweight to lower simply by gravity thus rising the object.
5. It is impossible to abuse or break this equipment due to the fact that it can only lift 99% of the counterweight. Friction of mechanical elements is the reason for the 1% loss.
6. Using the supporting post as the compression chamber allows 360 degree continuous movement.
7. The closeness of the pulleys supporting the carriage system produce a breaking effect in the event the operator would try to rise too high the counterweight.
8. The counterweight can be of variable weight:

It is a container equipped with a trap on the bottom that allows rapid emptying.

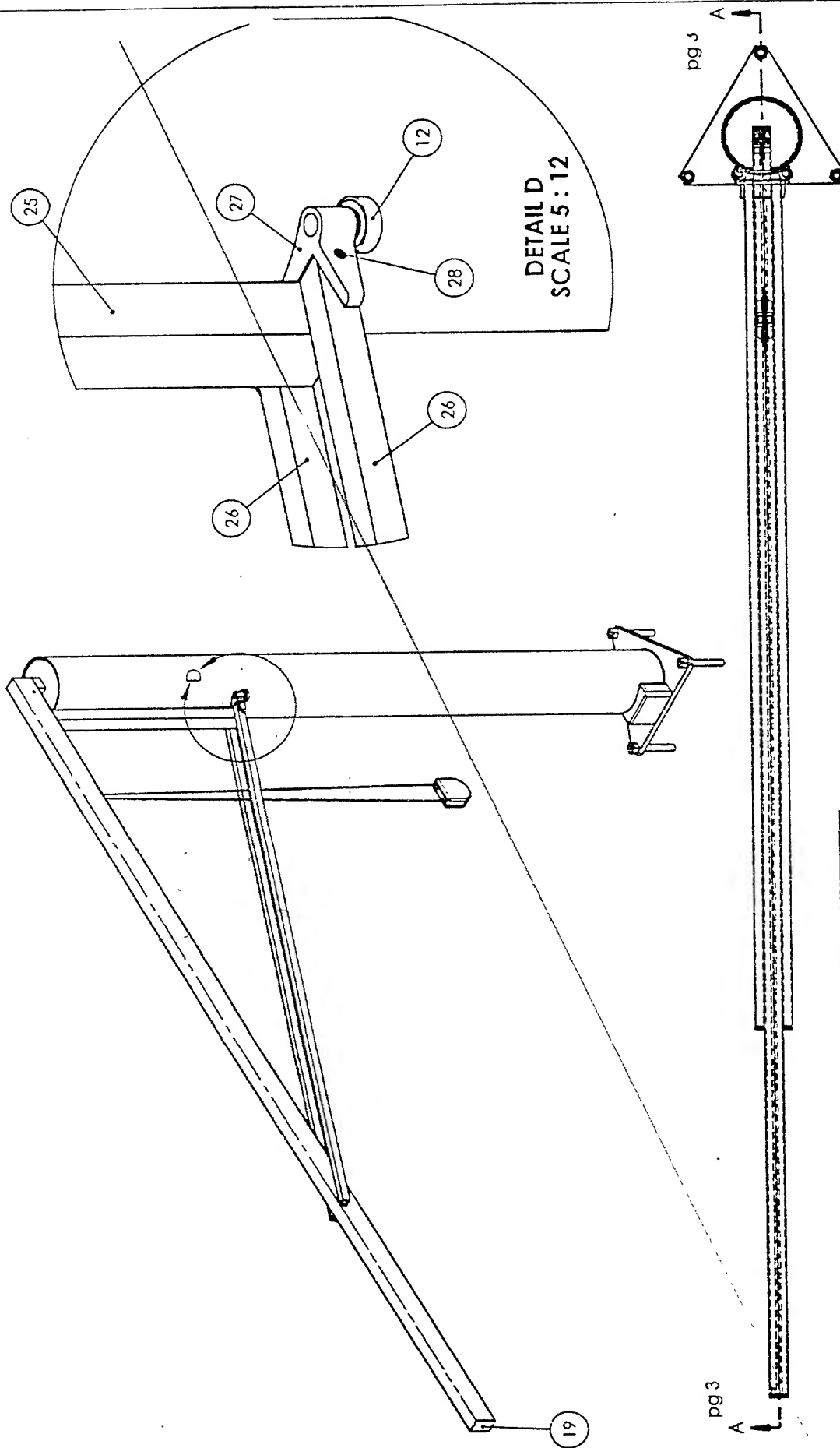
This container is open on top. A tank installed on top of the equipment can be filled with granular material or liquid using quiet moments. A trap on its bottom is used to fill the counterweight container as required.

The method of bringing granular material or liquid can be achieved by using a ¼ HP small conveyor system with jars in a continuous movement.

Management of the counterweight can be made possible by using liquids (water, oil, mercury) or granular material (sand, steel balls, polymeric balls).

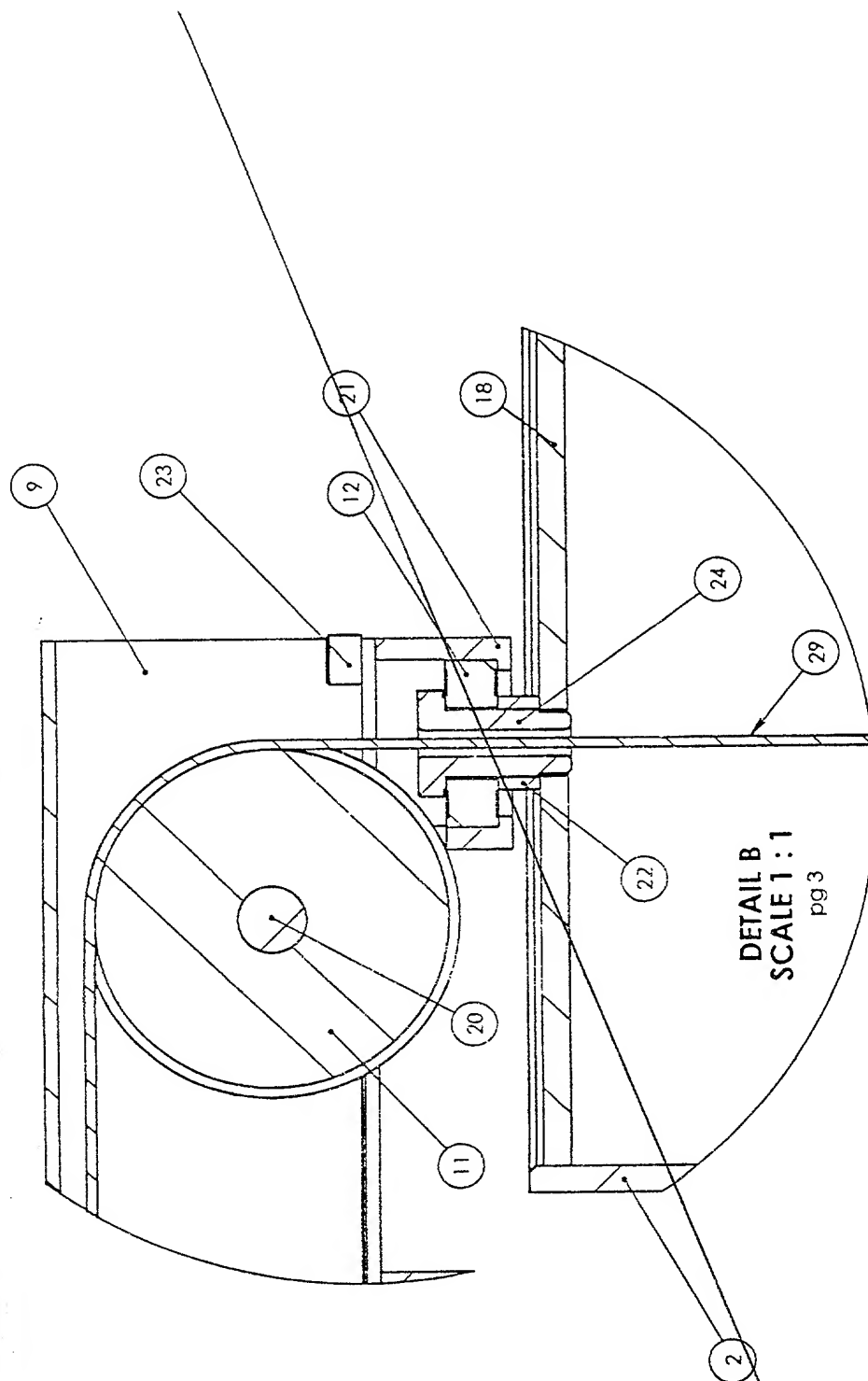
If mercury is chosen, everything must be done in closed circuit in order to avoid possible environment contamination. It must be noted that mercury has the advantage of being very compact although extremely expensive.

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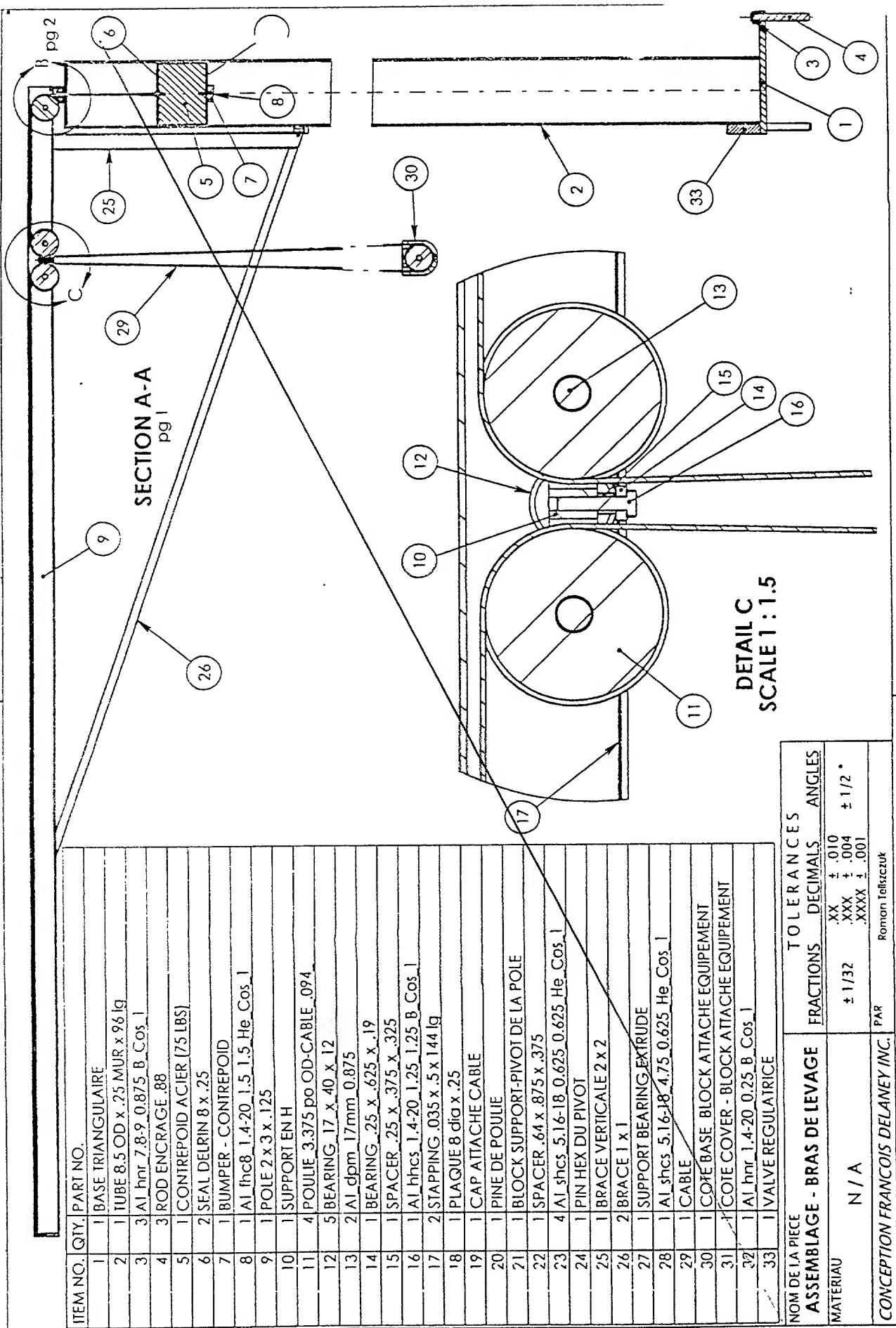


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	FRACTIONS	DECIMALS	ANGLES
MATERIAU N / A	$\pm 1/32$.XX $\pm .010$	$\pm 1/2^\circ$
		.XXX $\pm .004$	
		.XXXX $\pm .001$	
CONCEPTION FRANCOIS DELANEY INC.	PAR	Roman Telizczuk	

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NOM DE LA PIECE ASSEMBLAGE - BRAS DE LEVAGE	TOLERANCES		
	FRACTIONS	DECIMALS	ANGLES
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CONCEPTION FRANCOIS DELANEY INC.	PAR	Roman Teliszczuk	

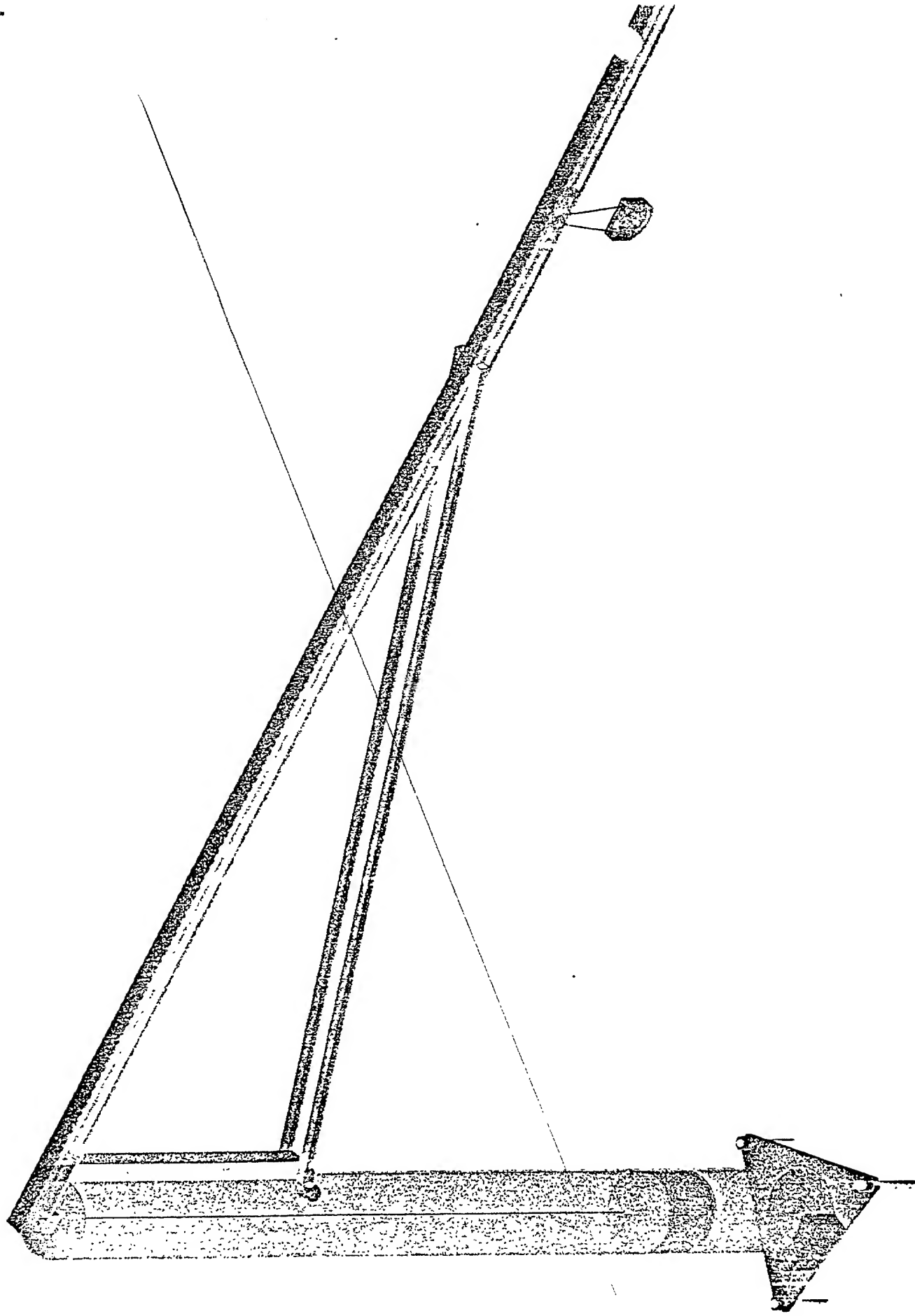


ITEM NO.	QTY.	PART NO.
1	1	BASE TRIANGULAIRE
2	1	TUBE 8.5 OD x .25 MUR x 96 lg
3	3	Al hnr 7.8-9 0.875 B Cos 1
4	3	ROD ENCRAGE .88
5	1	CONTREPOID ACIER (75 LBS)
6	2	SEAL DELRIN 8 x .25
7	1	BUMPER - CONTREPOID
8	1	Al fhc8 1.4-20 1.5 1.5 He Cos 1
9	1	POLE 2 x 3 x .125
10	1	SUPPORT EN H
11	4	POULIE 3.375 po OD-CABLE .094
12	5	BEARING 17 x 40 x 12
13	2	Al dpm 17mm 0.875
14	1	BEARING .25 x .625 x .19
15	1	SPACER .25 x .375 x .325
16	1	Al hhcs 1.4-20 1.25 1.25 B Cos 1
17	2	STAPPING .035 x .5 x 144 lg
18	1	PLAQUE 8 dia x .25
19	1	CAP ATTACHE CABLE
20	1	PINE DE POULIE
21	1	BLOCK SUPPORT-PIVOT DE LA POLE
22	1	SPACER .64 x .875 x .375
23	4	Al shcs 5.16-18 0.625 0.625 He Cos 1
24	1	PIN HEX DU PIVOT
25	1	BRACE VERTICALE 2 x 2
26	2	BRACE 1 x 1
27	1	SUPPORT BEARING EXTRUDE
28	1	Al shcs 5.16-18 4.75 0.625 He Cos 1
29	1	CABLE
30	1	COTE BASE BLOCK ATTACHE EQUIPEMENT
31	1	COTE COVER - BLOCK ATTACHE EQUIPEMENT
32	1	Al hnr 1.4-20 0.25 B Cos 1
33	1	VALVE REGULATRICE

NOM DE LA PIECE ASSEMBLAGE - BRAS DE LEVAGE	TOLERANCES		
	FRACTIONS	DECIMALS	ANGLES
MATERIAU N / A	± 1/32	XX ± .010	± 1/2°
		.XXX ± .004	
		.XXX ± .001	
CONCEPTION FRANCOIS DELANEY INC.		PAR	Roman Telkszyk

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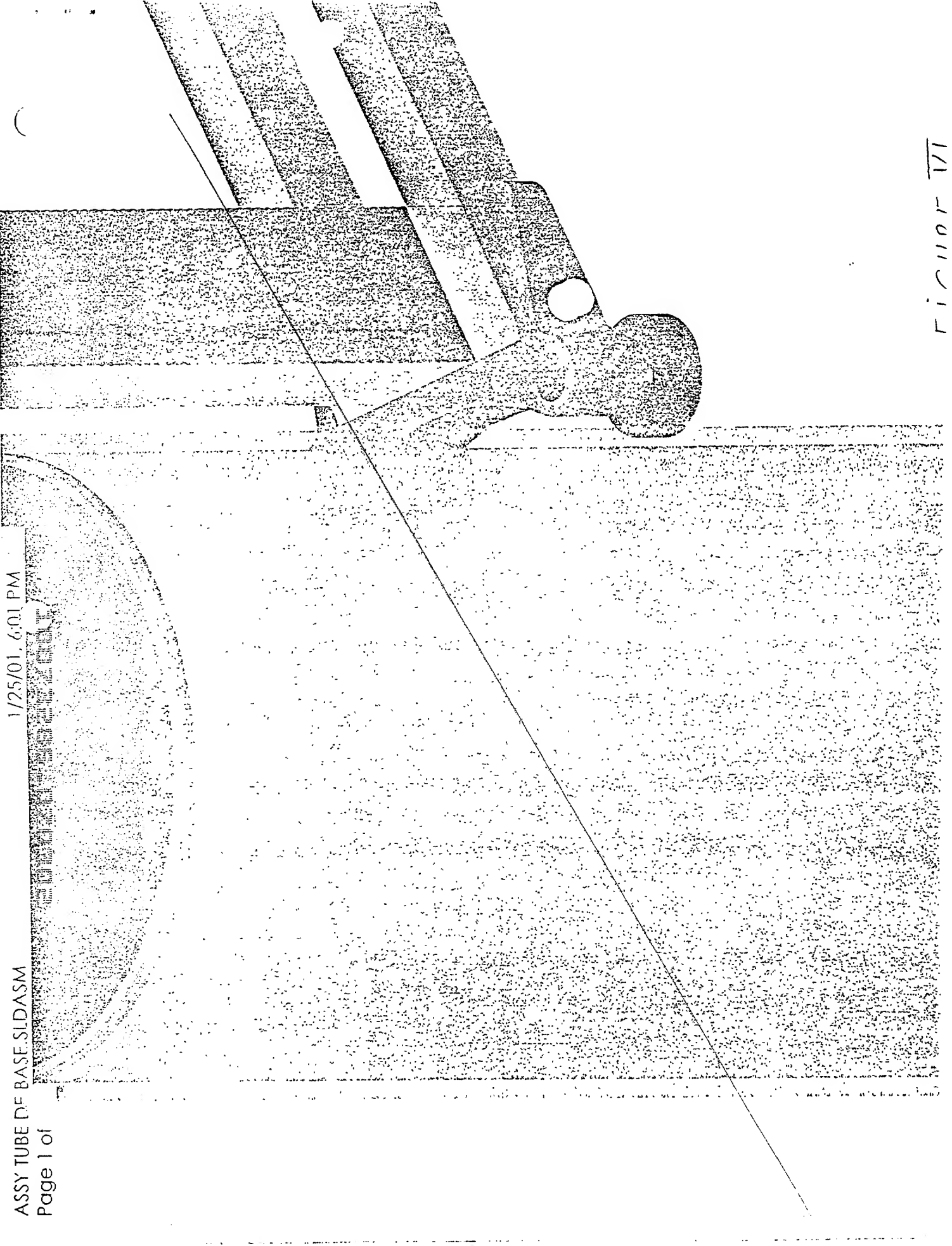
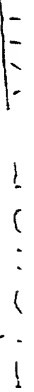


FIGURE 1/1



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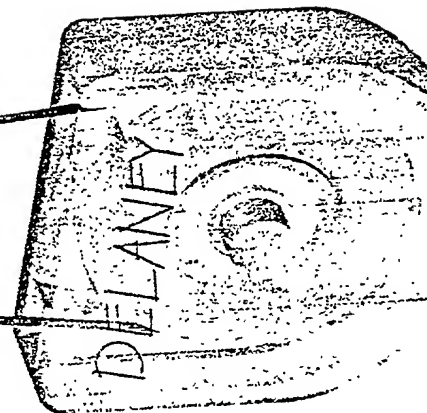


FIGURE VIII

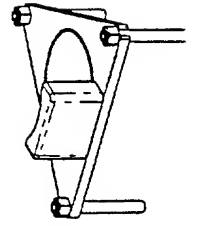
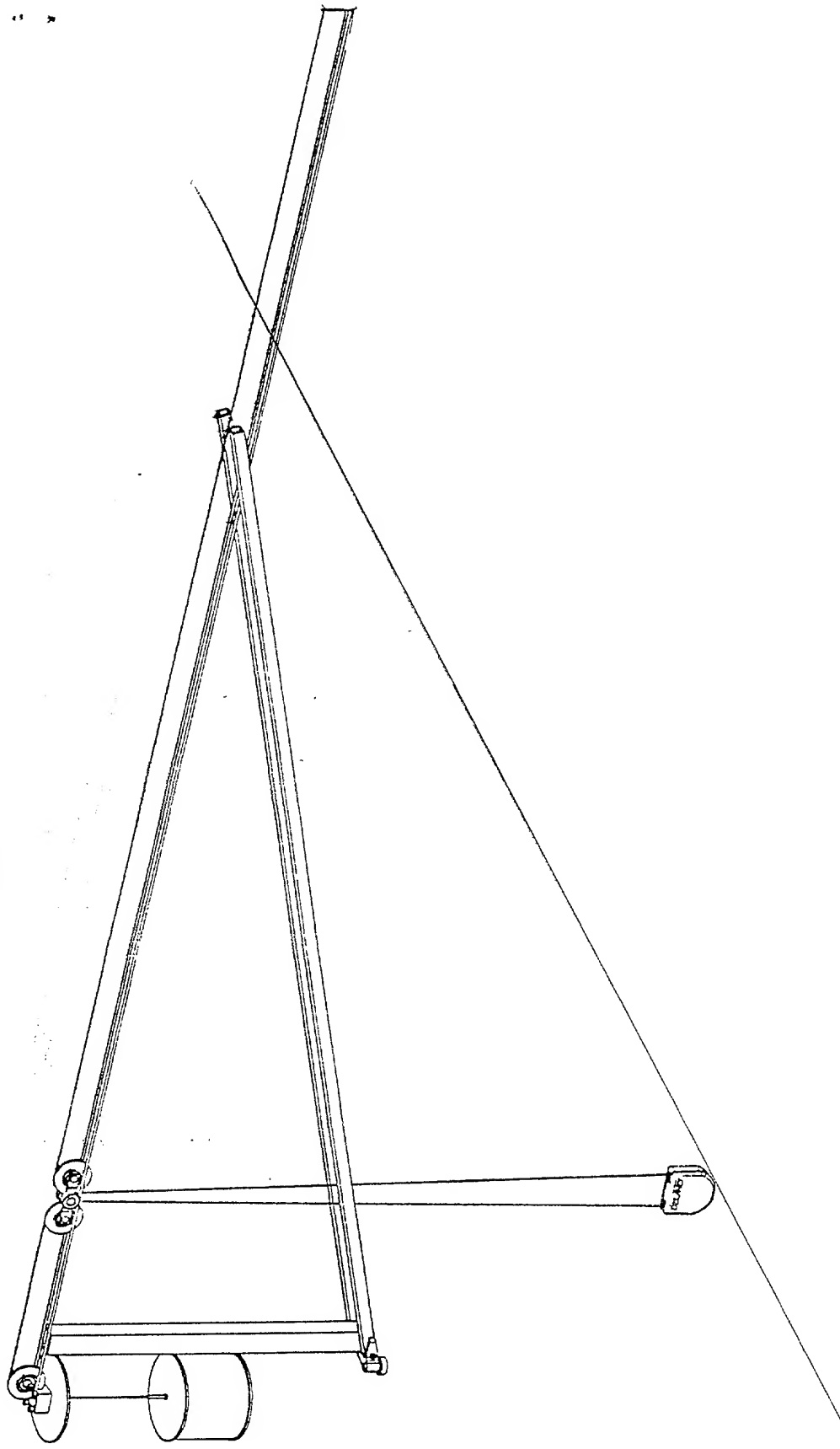
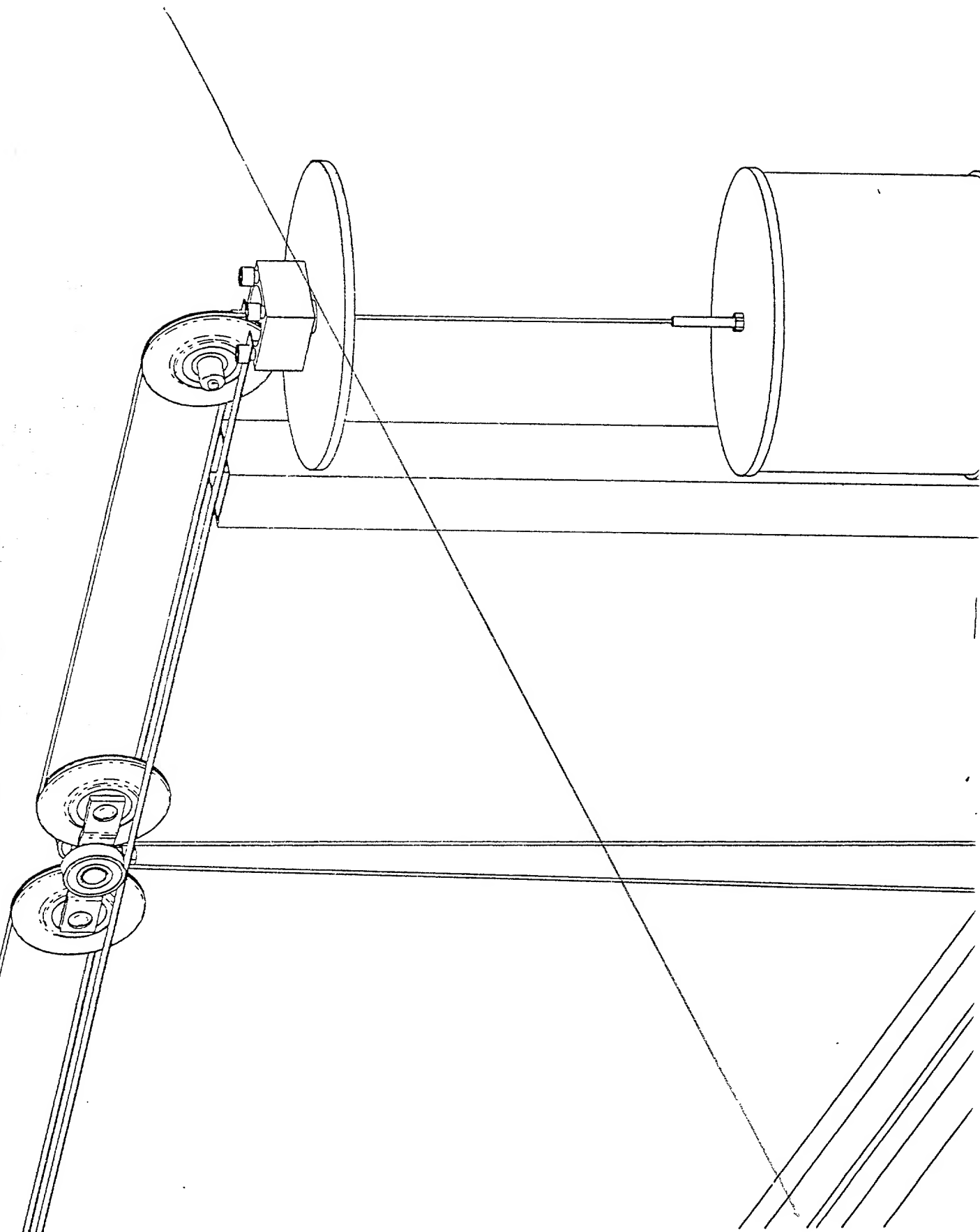
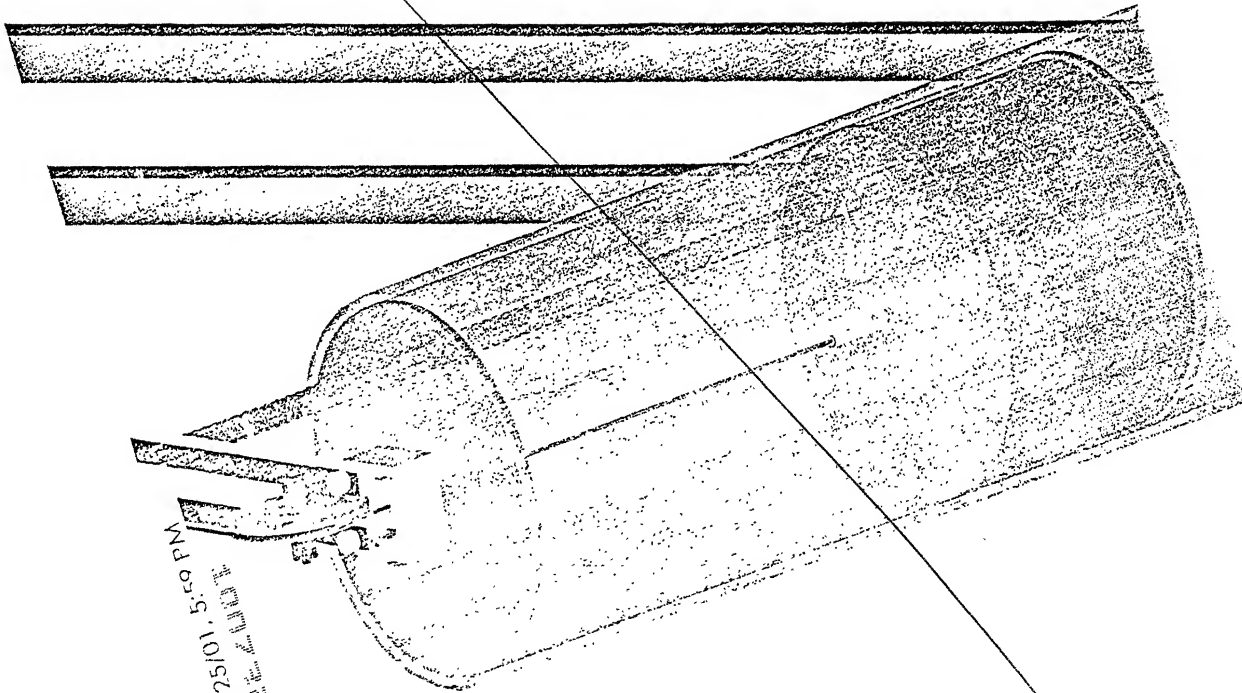


FIGURE IX



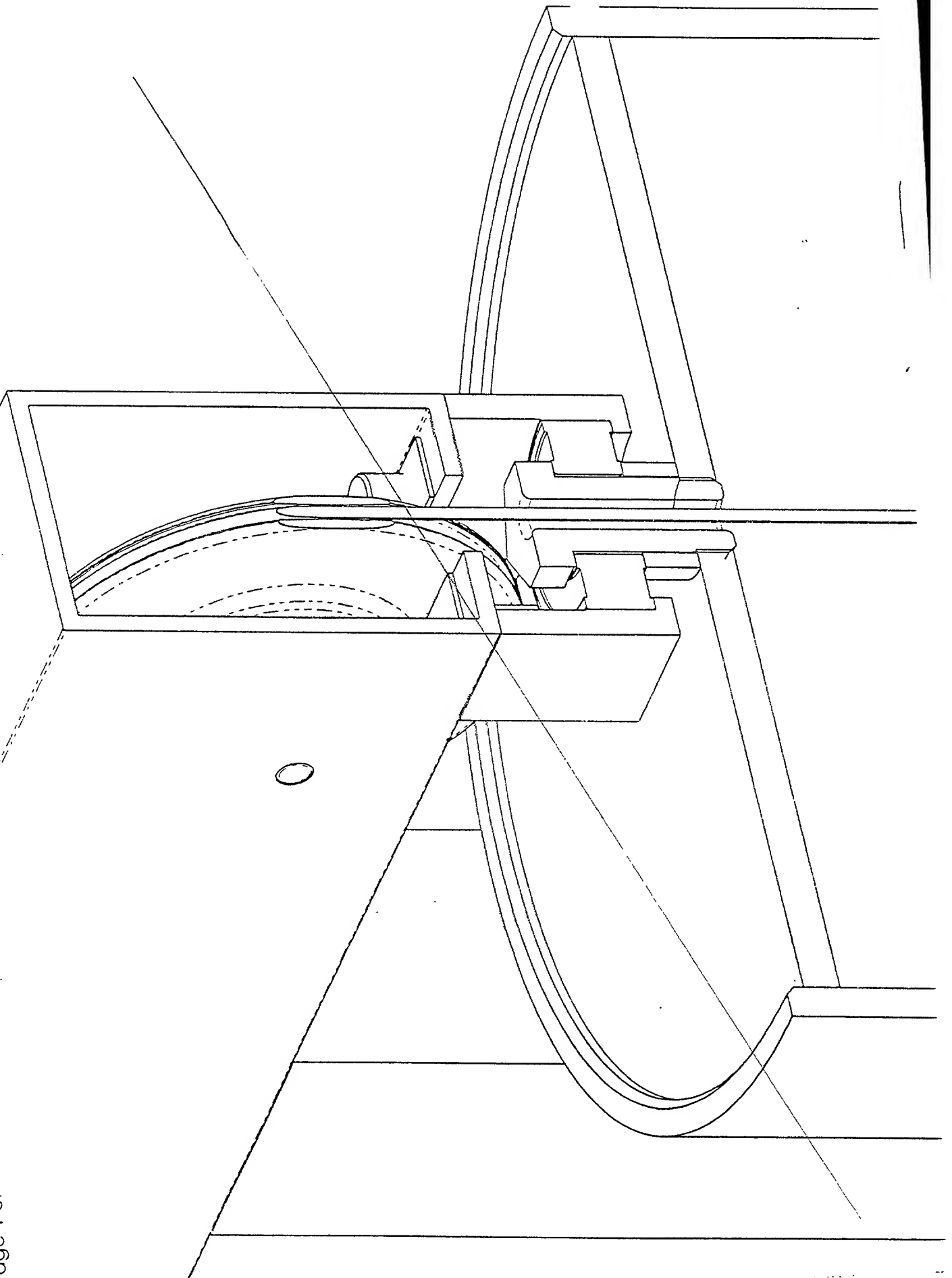
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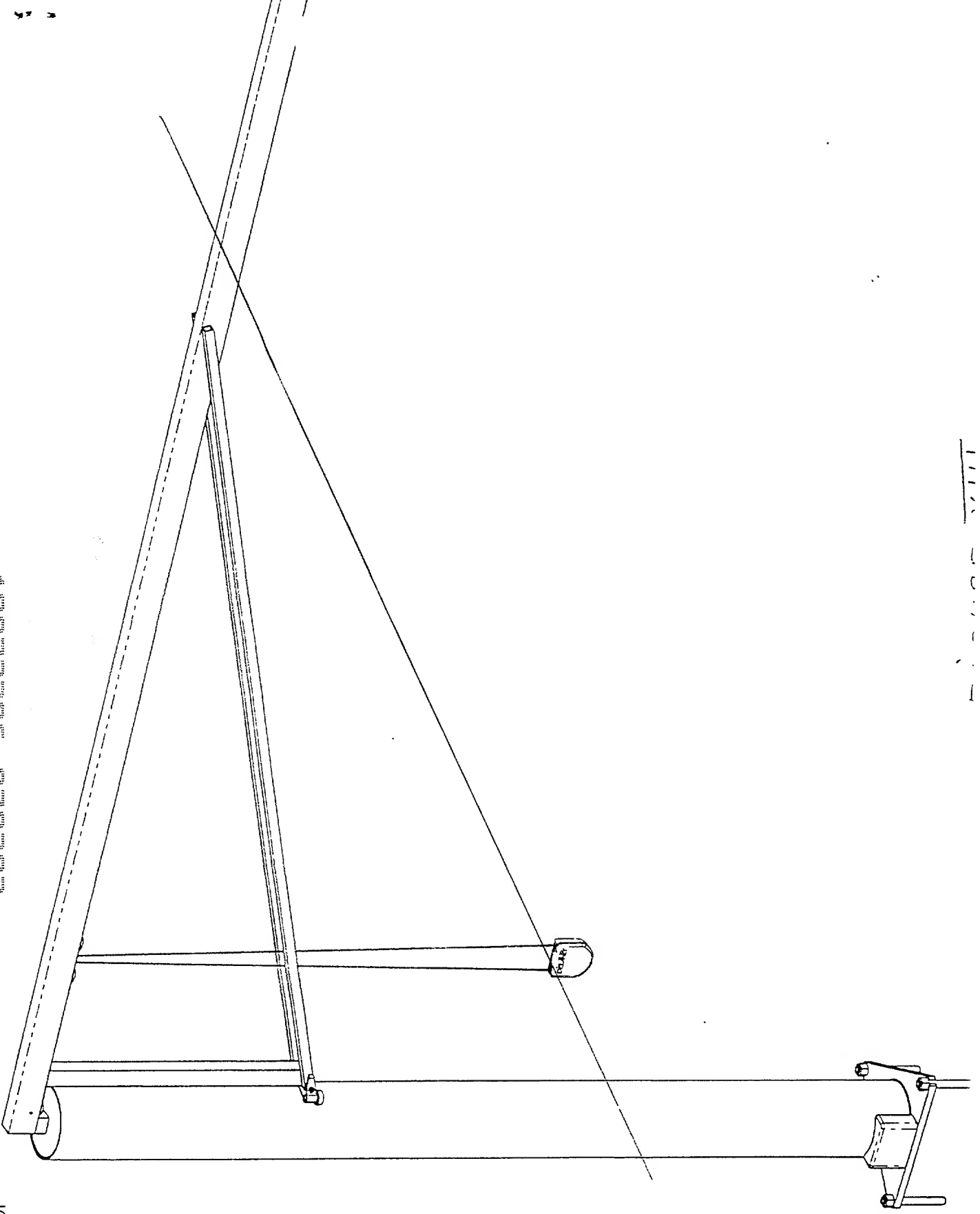


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Page 1 of 1





Abstract

A system for lifting and moving an object comprising a vertical post, having a lifting arm pivotably mounted thereon. Said vertical post comprising a piston connected to a carriage
5 slidably mounted on said lifting arm, such that operation of said piston can lower and raise said carriage.

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